

**Indiana Course-Aligned Assessment
Algebra II – Blueprint**

Standard	Description	Percent Range *
1 – Relations and Functions	Students recognize and graph polynomial, rational, and algebraic functions. They understand the concept of functional notation and use it to combine functions by composition. They solve equations and inequalities by examining their graphs and interpret situations as functions in graphs, formulas, and words.	6-16%
2 – Linear Absolute Value Equations and Inequalities	Students graph linear equations and inequalities involving absolute value. They use a variety of methods to solve systems of up to three linear equations in up to three variables, and they model data with linear equations and make predictions from the results.	6-16%
3 – Quadratic Equations and Functions	Students extend the number system by defining complex numbers, relating them to the real numbers, and using them to solve quadratic equations. They draw graphs of quadratic functions and apply transformations to the functions. They find and interpret zeros and maximum and minimum values, and solve word problems. They also solve equations containing radicals and solve pairs of equations.	10-20%
4 – Conic Sections	Students write equations and draw graphs of conic sections (circle, ellipse, parabola, and hyperbola), thus relating an algebraic representation to a geometric one.	3-12%
5 – Polynomials	Students understand and use the binomial theorem for positive integer powers. They learn techniques for factoring polynomials in order to solve equations and related word problems. They find approximate solutions of equations using graphing technology and write equations with given solutions. They understand the relationships among the solutions of an equation, the zeros of a function, the x -intercepts of a graph, and the factors of a polynomial.	6-16%
6 – Algebraic Fractions	Students understand and use the concepts of negative and fractional exponents. They add, subtract, multiply, divide, and simplify algebraic fractions. They solve equations involving algebraic fractions and solve related word problems. They also solve problems of direct, inverse, and joint variation.	10-20%
7 – Logarithmic and Exponential Functions	Students understand the concepts of logarithmic and exponential functions. They graph exponential functions and solve problems of growth and decay. They understand the inverse relationship between exponents and logarithms and use it to prove laws of logarithms and to solve equations. And they convert logarithms between bases and simplify logarithmic expressions.	10-20%
8 – Sequences and Series	Students define the concepts of arithmetic and geometric sequences and series. They find specified terms of sequences and partial sums of series and use their knowledge of sequences and series to solve word problems	4-14%
9 – Counting Principles and Probability	Students understand and apply counting principles to find permutations and combinations and related probabilities.	3-12%
10 – Mathematical Reasoning and Problem Solving	In a general sense, mathematics is problem solving. In all of their mathematics, students use problem-solving skills: they choose how to approach a problem, they explain their reasoning, and they check their results. At this level, students apply these skills to justifying the steps in simplifying functions and solving equations and to deciding whether algebraic statements are true. They also learn how to use counterexamples to show that a general statement is false.	**

* This range represents the approximate emphasis for each standard on the assessment.

** All test questions address Standard 10; however, all questions are mapped to a specific content area in Standards 1 – 9. Problem Solving should be taught in connection with content.